

A 1943 PROJECT

Test of Huge Supersonic Engineless Missile

A drawing submitted by "Flight" nearly five years ago to the Department of Scientific Research for a supersonic jet reaction missile.

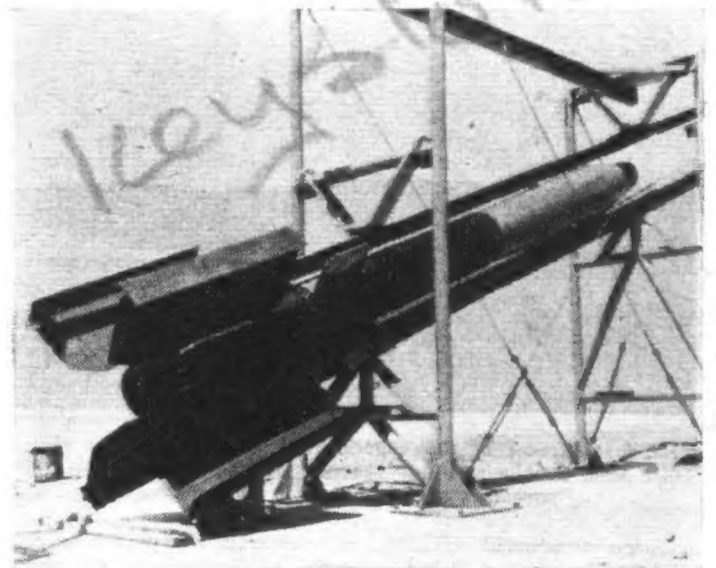
A NEW form of long-range jet-propelled supersonic projectile has just been tested in California. It combines rocket propulsion for initial take off and climb and the athodyd principles for continuing propulsion after the requisite speed has been attained. Such a possibility was envisaged during the war before the advent of the German V.1 and V.2 weapons. In October, 1943, Geoffrey Smith, editorial director of *Flight*, submitted to the Department of Scientific Research, and subsequently to the Air Staff, a drawing and specification of a dual propulsion missile to be launched by rocket and boosted to supersonic speed in what was termed stage 1. Thereafter the missile was to be propelled on the ramjet or athodyd principle. Air was rammed into an annular duct arranged at the front end and compressed in a divergent duct. Liquid fuel was to be burnt continuously in this compressed air to provide propulsion by straight jet reaction. The details embraced the proposal of a missile weighing many tons and having a long range, and included the idea of an automatic pilot or radio control. Stabilizing tail fins were specified.

In the drawing (which is reproduced from the fourth edition of *Gas Turbines and Jet Propulsion for Aircraft*) the projected missile was shown leaving England for its German target by way of the stratosphere. Considerable interest in official circles was created by the design which was carefully studied. Subsequently it was not thought possible to develop the weapon to be of value during the war, although the conflict, as we now know, continued for nearly two years longer. When visiting America in 1944 Mr. Geoffrey Smith showed the design by agreement to a number of interested parties although publication was temporarily withheld.

It was in 1944 that the V.1 flying bomb, propelled by a pulsating jet, pestered this country, and at the end of 1944 and early 1945 the V.2 rocket missile was showered on the South of England from Germany. The weapon which the U.S. Navy Bureau of Ordnance and Aeronautics has

just tested is the largest ramjet ever flown and is reported to have attained a velocity far into the supersonic range. As in the 1943 project it employs both rocket and air-jet propulsion. The similarity extends to the use of solid fuel for the rocket system.

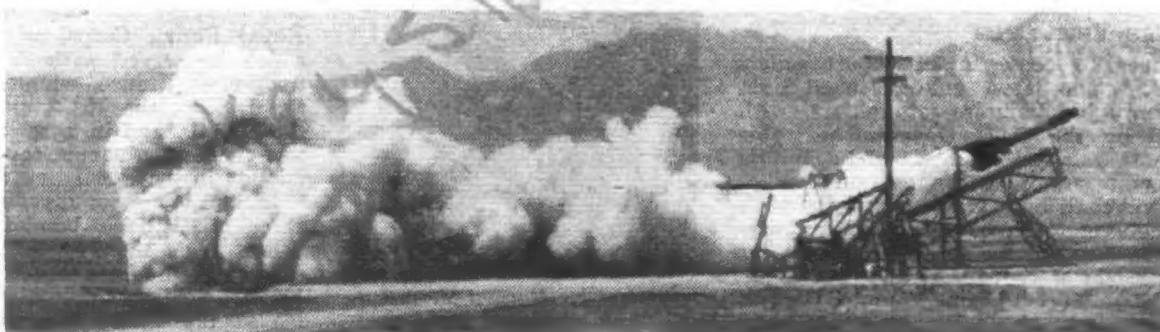
Although no figures of the speed attained have been announced following the first test at the Naval Ordnance



A similar version of the missile developed by the U.S. Navy Bureau of Ordnance and Aeronautics on the launching rack.

Station, Inyokern, California, the projectile is reported to have achieved a speed far into the supersonic range.

It was developed to a practical stage by the Applied Physics Laboratory of John Hopkins University, and sponsored by the U.S. Navy Bureau.



First test in California of the rocket ramjet projectile which reached supersonic speeds.

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